UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,213	09/19/2003	Herb Sorensen	SNS 307	7032

50488 7590 11/05/2008

ALLEMAN HALL MCCOY RUSSELL & TUTTLE LLP
806 SW BROADWAY
SUITE 600
PORTLAND, OR 97205-3335

EXAMINER	
ANDERSON, FOLASHADE	
ART UNIT	**PAPER NUMBER**
3623	

MAIL DATE	DELIVERY MODE
11/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/667,213	SORENSEN, HERB	
	Examiner	Art Unit	
	FOLASHADE ANDERSON	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/19/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is the second non-final office action in response to Applicant's submission filed on 07/24/2008. Currently, claims 1-5 and 7-50 are pending. Claim 6 is canceled. Claims 1, 7, 10, 26, 34, and 48 are amended.

Response to Amendment

2. Applicant's amendments to paragraph [0033] and [0040] are sufficient to overcome the drawing objections set forth in the previous office action. Examiner notes that in Applicant's original specification submitted on 09/19/2003 the paragraph number appear not to correspond to Applicant's correction 07/24/2008; however, Applicant submitted the full text of the paragraphs which should serve to clarify any questions as to the proper location of the specification amendments.

3. Applicant's amendment to claim 48 is sufficient to overcome the claims objection set forth in the previous office action.

4. Applicant's amendments to claims 1, 26 and 34 are sufficient to overcome the 35 U.S.C. 112, second paragraph rejects set forth in the last office action.

Response to Arguments

5. Applicant's arguments, with respect to the rejection(s) of claim(s) 1 (previously claim 6 currently amended in to claim 1) and 41 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made using Farley

et al (A Stochastic Model of Supermarket Traffic Flow, published 1966) in view of Smith (US Patent 6,563,423). Examiner notes that prior art upon which the rejects is based has not changed from the previous office action since upon re-review of the prior art in light of Applicant's arguments support for the reject is still available in the prior art. The Applicant asserts that "Farley teaches away from analyzing shopper in a way other than by first considering the location of a product", see page 17-18 of the remarks. Examiner notes that the underlying premise of Farley's disclosure is a common physical frame see page 555 "the influence of store layout, since a more comprehensive model requires an understanding of traffic flow as well as the effects of other variables superimposed on a given layout (common physical frame)." It is old and very well known in the art that will there are infinite possibilities for a store layout; there are a standard few that are generally used for example, racetrack, grid, and free from. Examples of layouts are given in the previously sited Heller article, see pages 48-49. Therefore any theories or predictions made by Farley are rooted in the given layout analysis (spatial analysis).

6. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, see remarks page 19, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's

disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

7. It is noted that the applicant did not challenge the officially cited facts in the previous office action(s) therefore those statements as presented are herein after prior art. Specifically it has been established that it was old and well known in the art at the time of the invention that:

- that time adjustments were old and well known techniques used in analyzing statistical data (claim 2)
- taken that smoothing techniques, using estimated measures for an actual location at each point in time rather than raw data (claim 37)
- the statistical technique of scaling (standardizing) to a common physical frame of reference, thus allowing for an apples to apples comparison (claim 27)
- taken that any store environment using old and well known geometric techniques can divide any store space in to four trapezoids with a center rectangle (claims 28, 29, 34 and 35)
- that average of such calculation is an old and very well known mathematical formula (claim 50)

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-5 and 6- 40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In order for a method to be considered a "process" under §101, a claimed process must either: (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials). Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972). If neither of these requirements is met by the claim, the method is not a patent eligible process under §101 and is non-statutory subject matter.

With respect to independent claim 1, the claim language recites the steps of tracking of paths, recording path data, normalizing path data, etc., however the claim language does not include the required tie or transformation.

Claims 2-5 and 6- 40 are rejected based upon the same rationale, wherein the claim language does not include the required tie or transformation.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-5 and 7-26, 47-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farley et al (A Stochastic Model of Supermarket Traffic Flow, published 1966) in view of Smith (US Patent 6,563,423).

In regards to claim 1 Farley teaches **a method for analyzing a shopping environment, the method comprising the steps of:**

- **tracking a plurality of paths of a plurality of persons in the shopping environment** (p. 557 "actual paths traveled by a sample of shoppers are traced");
- **recording corresponding path data** (p. 562 "traffic flows collected on maps drawn by research assistants who secretly followed shoppers");
- **normalizing the path data for each path by use of a predetermined normalization function** (p.559 "normalized by the sum of forces of feasible transitions");
- **calculating a predetermined statistical measure of the normalized shopping data** (p. 562 "the conditional probabilities of going to area j given shoppers are in area i"); **and**
- **producing output based upon the predetermined statistical measure** (p.566 "the Boston transactions observed on a variety of dissimilar layouts produced predictive structures very similar to those derived on actual data for the Pittsburgh stores")

Farley teaches "the influence of store layout, since a more comprehensive model requires an understanding of traffic flow as well as the effects of other variables superimposed on a given layout (common physical frame)" (p. 555); therefore, the spatial locationing within the store is inherent to Farley's disclosure based on the given layout being analyzed. Additionally, Farley teaches data gathered at one set of locations can be used to make prediction at other store location which Farley indicated might be helpful in analysis of hypothetical store layouts as well as in the analysis of stores already in existence (common physical frame) (p. 556).

Farley does not expressly teaches **including converting path position data from different shopping environments into a common physical frame to thereby produce normalized position data for the paths**

Smith teaches that customers maybe tracked in one or more retail locations (col. 4, lines 5-8). Smith also discloses that the tracking data can be used on a local store level or from a centralized level (col. 12, lines 4-12) further it could be implied from the references disclosure that this data could be used to statistically compare multiple location data.

Official notice is taken that within the art there are a limited number of well known and used store layout formats (common physical frames) for example racetrack, grid, free form and controlled form.

While neither Farley nor Smith expressly teaches a common physical frame of reference official notice is taken that the statistical technique of scaling (standardizing) to a common physical frame of reference, thus allowing for an apples to apples

comparison was an old and well known technique used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of scaling (standardizing) to a common physical frame of reference in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

Further the Examiner notes that it is recognized that the spirit of the instant application is done in an automatic environment, where as the teachings of Farley are produced in a semi-automatic method, however it has been held that it is not inventive to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result, see In re Venner, 120 USPQ 192 (CCPA 1958) and In re Rundell, 9 USPQ 220 (CCPA 1931).

In regards to claim 2 Farley teaches **wherein the path data includes position data representing a series of tracked positions of a person in the shopping environment** (p.562, traffic flows collected on maps drawn by research assistants)

Farley does not expressly teach that the position data is **associated time data representing a corresponding series of times at which the person was tracked in each position.**

However Smith teaches if a tag (person) is detected then the location is recorded with the option to include a time stamp (col. 11, lines 31-36); in the analogous art of individual location tracking for the purpose of tracking a customer in a defined space.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the teachings of Smith, an optional time stamp, in the

invention of Farley, to allow the information to be used later to calculate speed, which is beneficial as speed is an indicator of the areas in the store where the customer spent the most/least amount of time. Examiner notes that the timestamp in the teachings of Smith is automatic however the option of adding a time stamp to the traffic flow drawings of Farley would have been within the aptitude of one of ordinary skill in the art.

In regards to claims 3-5 and 12 which are directed toward **normalizing includes time adjusting** (shifting, scaling, calibration) **the time data for each path to a common** (calibration) **time reference** (starting point, duration).

Farley does not expressly teach time adjustment in association with the collected path data however in the area of comparative statistical analysis of data time adjustments are a common practice. For example Farley (p. 567) discloses the possibility of adding density estimates to his model or sequences of history which would both require that one of ordinary skill in the art at the time the invention was made to be able to communize (scale, shift, calibrate) the path data in terms of time and space to allow these density estimates or sequences of history data to be useful.

Similarly Smith implies the use of time adjustment in association with the collected path data in the allowance for traffic distribution and the number of people passing a particular location both derived conclusions based on path data in relation to time (col. 12, lines 14-57).

Official notice is taken that time adjustments were old and well known techniques used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of

time adjustment (scaling, shifting, calibrating) in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

In regards to claims 7, 8, 10 and 11 which are directed to **normalizing includes converting path position data from different shopping environments into a common physical frame of reference** (standardized shopping environment dimensions, sectors)**, to thereby produce normalized position** (scaled) **data for the paths.**

Farley teaches "the influence of store layout, since a more comprehensive model requires an understanding of traffic flow as well as the effects of other variables superimposed on a given layout (common physical frame)" (p. 555); therefore, the spatial locationing within the store is inherent to Farley's disclosure based on the given layout being analyzed. Additionally, Farley teaches data gathered at one set of locations can be used to make prediction at other store location which Farley indicated might be helpful in analysis of hypothetical store layouts as well as in the analysis of stores already in existence (common physical frame) (p. 556).

Farley does not expressly teaches **including converting path position data from different shopping environments into a common physical frame to thereby produce normalized position data for the paths**

Smith teaches that customers maybe tracked in one or more retail locations (col. 4, lines 5-8). Smith also discloses that the tracking data can be used on a local store level or from a centralized level (col. 12, lines 4-12) further it could be implied from the

references disclosure that this data could be used to statistically compare multiple location data.

Official notice is taken that within the art there are a limited number of well known and used store layout formats (common physical frames) for example racetrack, grid, free form and controlled form.

While neither Farley nor Smith expressly teaches a common physical frame of reference official notice is taken that the statistical technique of scaling (standardizing) to a common physical frame of reference, thus allowing for an apples to apples comparison was an old and well known technique used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of scaling (standardizing) to a common physical frame of reference in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

In regards to claim 9 Farley teaches **each of the plurality of shopping environments has a longitudinal dimension and a length, a lateral dimension and a width, and the position data for each path includes a plurality of longitudinal and lateral coordinate values, and the step of converting the position data to a standardized frame of reference further includes dividing each longitudinal coordinate value by the length for the corresponding shopping environment, and dividing each lateral coordinate value by the width for the corresponding shopping environment** (p. 562, " The maps were overlaid with a plastic grid and each customer's path coded as a numerical sequence"; where the Examiner asserts that a

grid layout and numerical sequencing is an old and well known equivalent of a coordinate system).

In regards to claims 13-16 which are directed toward **the predetermined normalization function includes determining a proportion of the path completed** (distance traveled, time elapsed, cumulative purchases made with to a person on said path).

Farley teaches traffic flow in relation to purchase made (p. 565) however he does not expressly teach proportionalities of this information.

Smith teaches tracking a customer throughout a store and allows for the optional time stamp (col. 11, lines 31-36). As such one of ordinary skill in the art at the time the invention was made could have calculated the distance traveled along path and the time elapsed while a customer was on a path. Additionally Smith teaches a customer correlation engine to analyze the relationship between location and sales (col. 12, lines 46-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of Smith in the invention of Farley to allow the information to be used later to calculate various statistics on the shoppers experience thus providing a more robust probability model. Examiner notes that the timestamp, distance tracking and sales data in the teachings of Smith is automatic however this optional information is available manually for combination in the disclosure of Farley would have been within the aptitude of one of ordinary skill in the art.

In regards to claim 17 Farley teaches **the step of calculating includes calculating a master path based on a plurality of the paths tracked in the shopping environment** (p. 561 "P_{ij}=the transition probability from area i to area j in those cases where direct transition is feasible"; where the probability path is the master path in that it is the path mostly to be taken by shoppers based on data collect from actually shopper's paths).

In regards to claims 18 and 19 which are directed towards **the shopping environment has a longitudinal** (lateral) **dimension, and each path has a plurality of longitudinal** (lateral) **coordinate values, and wherein the calculation of the master path includes averaging longitudinal** (lateral) **coordinate values of corresponding points of each path to obtain corresponding average longitudinal** (lateral) **coordinate values.**

Farley teaches (p. 562) "maps were overlaid with a plastic grid and each customer's path coded as a numerical sequence"; where the Examiner asserts that a grid layout and numerical sequencing is an old and well known equivalent of a coordinate system.

In regards to claims 20 and 21 which are directed towards **the step of calculating includes calculating density of a plurality of persons tracked throughout at least a portion of one or more shopping environments** (plurality of shopping environments).

Farley discloses the possibility of including density estimates to allow for a higher-order probability process (p.567).

In regards to claims 22 and 23 which are directed towards **the step of calculating includes calculating flow of a plurality of persons traveling throughout at least a portion of one or more shopping environments (**plurality of shopping environments**)**

Farley teaches calculating flow of shopper moving from one area of the store to another in several supermarkets in Pittsburg (p. 562).

In regards to claim 24 Farley teaches **the shopping environment has a longitudinal dimension and a lateral dimension, and each shopping path has a plurality of longitudinal coordinate values and a plurality of lateral coordinate values** (p.562" The maps were overlaid with a plastic grid and each customer's path coded as a numerical sequence"; where the Examiner asserts that a grid layout and numerical sequencing is an old and well known equivalent of a coordinate system)**, and wherein the step of calculating further includes, for each shopping path, associating with each selected time a velocity** (p. 567, velocity or instantaneous density estimates might be built into a semi-Markov framework)**.**

In regards to claims 25 and 26 which are directed towards **the step of calculating includes calculating shopping intensity of a plurality of shoppers traveling throughout at least a portion of a shopping environment** (plurality of shopping environments)**.**

Farley does not expressly teach the intensity of the traffic flow however the intensity could be calculated based on the data known in the method of Farley to create a more robust modeling system.

Smith teaches intensity in the number of customers in a store at any given time (col. 12, 17-18). While this analysis is shown in a single store the disclosure of Smith allows for multi-store tracking.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the disclosure of Smith, intensity, in the method of Farley to produce a more robust probability model.

In regards to claim 37 Farley teaches step **of calculating further includes the steps of:**

- **calculating a length of the shopping path** (p. 558, d_{ij} is the distance from area i to area j over the shortest feasible path)**;**

Farley does not expressly teach:

- **smoothing the shopping path to obtain a smoothed path;**
- **calculating a length of the smoothed path; and**
- **comparing the length of the smoothed path with the length of the shopping path.**

Official notice is taken that smoothing techniques, using estimated measures for an actual location at each point in time rather than raw data, are old an very well known in the art at the time the invention was made to reduce noise in plots thus allowing a clearer picture of the data.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a smoothing technique in the invention of Farley to allow for a clear analysis of multi data point data gather for one location over a period of time.

In regards to claim 40 both Farley and Smith teach the limitation of the claim in the context of a shopper (Farley p. 567 and Smith col. 12, lines 40-57); **the plurality of persons includes shoppers, and the step of calculating a statistical measure includes calculating a statistical measure based on shopper path data, the method further comprising, comparing the calculated statistical measures of the shoppers.**

However neither Farley nor Smith teaches the plurality of persons includes "non-shoppers" or "non-shopper path data"

The Examiner holds that these differences are only found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP. 2106.

In regards to claim 38 and 39 Farley teaches **the plurality of persons include a plurality of shoppers** (non-shoppers) (p. 557 "actual paths traveled by a sample of shoppers are traced")**.**

The examiner notes that Farley teaches shoppers and does not expressly teach non-shoppers however, these differences are only found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they

alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP. 2106.

12. Claims 27- 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farley et al (A Stochastic Model of Supermarket Traffic Flow, published 1966) and Smith (US Patent 6,563,423) as applied above and further view of Heller (Tracking Shoppers Through the Combination Store, published 1988).

In regards to claim 27 Farley teaches **wherein calculating includes examining one or more paths from each of the shopping environments to determine a measure of a predetermined shopper behavior or non-shopper behavior occurring in each of the sectors** (p.562 "the model's predictive power was tested with data on actual supermarket traffic flows")**.**

Farley does not expressly teach **normalizing includes determining a standardized shopping environment including sectors and converting the path data from each of a plurality of shopping environments to the standardized shopping environment.**

Farley does teach a comprehensive model using normalization, standard model for any store, for predicting traffic flow, a measure of shopper's behavior, based on store layout and actual traffic flow, collected path data (p.555).

Heller further teaches a predetermined measure of shopper's behavior in a store environment (p. 49, department penetration chart which shows individual store averages as well as overall average for the stores, standard shopping environment)

While Farley, Smith nor Heller expressly teaches a common physical frame of reference official notice is taken that the statistical technique of scaling (standardizing) to a common physical frame of reference, thus allowing for an apples to apples comparison were old and well known techniques used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of scaling (standardizing) to a common physical frame of reference in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

In regards to claim 28 and 29 which are directed towards **the shopping environment has four sides, four comers, and a center** (partitioned into five sections)**, four of the sectors are substantially trapezoidal in shape having two sloping sides and a longer and a shorter of two substantially parallel sides, and the remaining sector is substantially rectangular in shape and having four sides and a center, the sloping sides of the four substantially trapezoidal sectors coinciding with segments of diagonal lines from opposite comers of the shopping environment, the longer of the two substantially parallel sides of each**

substantially trapezoidal sector coinciding with a side of the shopping environment, and the shorter of the two substantially parallel sides of each substantially trapezoidal sector forming a side of the remaining, substantially rectangular, sector, with the center of the substantially rectangular sector coincident with the center of the shopping environment.

Farley teaches dividing the store in to numbered area (p.557)

Smith teaches various methods for dividing the monitored shopping area see figures 4, 5 and 7.

Heller illustrates four common store layouts, see p.48 -49 the examiner notes that all layouts show a substantially rectangular shape.

Official notice is taken that any store environment using old and well known geometric techniques can divide any store space in to four trapezoids with a center rectangle, see examiner's rough example below using Heller's store 3 layout (p.48). Further it is noted that it is also old and well known in the art that stores are divide in to multiply departments such as checkout, perishables, frozen etc.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the monitored store in to multiple sections as shown above to allow for a more robust statistical analysis of the path data collected.

In regards to claims 30-33 which are directed towards **the shopper** (non-shopper) **behavior is visiting** (slowing below a predetermined threshold speed, purchasing) **a predetermined region of the shopping environment corresponding to the sector of the standardized shopping environment.**

Farley teaches “occurrences of various pair-wise transitions are tabulated to give frequency distribution of transitions”; where transitions are the actual paths taken by a customer moving from one area of the store to another (p.557).

Smith teaches that a the orientation or pace of a customer may be derived form the array (col. 10, lines 37- 39) and how long a customer stopped (slowing below a threshold) at a certain location (col. 12, lines 28-30) and whether a customer visiting a certain location ultimately purchased a product from that location (col. 12, lines 25-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was mad to include the teachings of Smith in the invention of Farley to of Farley to produce a more robust probability model.

In regards to claim 34-35 which are directed towards **step of calculating a predetermined statistical measure further includes determine a best ellipse to encompass a predetermined percentage of the shopper behavior or non-shopper behavior** (percentage of trip completion)**.**

Farley teaches dividing the store in to numbered area and determining if a person travels from one area to another (p.557); where the percentage of trip complete would be 100% for yes the person moved from area j to i and 0% complete if the person does not move from area j to i.

Smith teaches monitoring the number of people passing a particular location could be determined (col.12, lines 31-32).

Heller teaches penetration the percentage of people actually going into or passing a particular location (p.47); where this percentage would be the percentage of a trip complete.

Official notice is taken that any store environment using old and well known geometric techniques can divide any store space in to any geometric shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the monitored store in to multiple sections to allow for a more robust statistical analysis of the path data collected.

In regards to claim 36 Farley teaches **the output includes a contour plot of percentage of trip completion for a plurality of paths** (p.559, "circular movement of traffic through the store, evidenced by the fact that the modal path through the (defined as the most frequent cell to cell traffic transition) generally follows the store's perimeter, but tends to break up as the sweep of a circle is completed"; where the percentage of trip complete would be 100% for yes the person moved from area j to i and 0% complete if the person does not move from area j to i.).

13. Claims 41-45 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US Patent 6,563,423).

In regards to claim 41 Smith teaches **A system for use in analyzing a shopping environment, the system comprising:**

- **a computing device configured to receive path data corresponding to a plurality of persons tracked in one or more shopping environments** (col. 3, lines 44-46)**, the path data including position data and time data** (col. 11, lines 31-36)**, and execute an analysis program having...a statistical calculation module** (col. 12, lines 40-57)**;**
- **wherein the statistical calculation module is configured to calculate a predetermined statistical measure** (col. 12, lines 14-32; where the Examiner understands that if the system is programmed to compute for example intensity then that statistical measure is predetermined)

Smith does not expressly teach that the data is normalized path data

- **wherein the normalization module is configured to convert the path data to a common time frame of reference and a common physical frame of reference, to thereby produce normalized path data; and**

Official notice is taken that normalization and the scaling of time and physical frame (converting to a common time/physical frame) were old and well known techniques in the art of statistical analysis of data. These techniques allowed for an apples to apples comparison of similar data collected at different times and in different environments. The programming of a system or the manual calculation of this information would have been within the aptitude of one of ordinary skill in the art at the time the invention was made using the data collected by the system of Smith. Examiner notes that the system of Smith allows for the addition of other analysis engines (col. 12, lines 55-57).

The Examiner's position that the statistical techniques of normalizing and scaling were known in the art. These known techniques are applicable to the system of Smith as they allow for further analysis of the data collected by Smith.

One of ordinary skill in the art at the time the invention was made would have recognized that applying these known statistical techniques to the system of Smith would have yield predictable result in an improved system. It would have been recognized that applying the known statistical techniques to the system of Smith would have yielded predictable results because of the level of ordinary skill in the art as demonstrated by the reference applied shows the ability to incorporate such a feature in to the system.

In regards to claim 42 Smith teaches **a shopper tracking module configured to receive shopper path data from a tracking system (**col. 12, lines 1-12)**.**

In regards to claim 43 Smith teaches **the tracking system includes sensors configured to track shopper tags throughout each of the shopping environments, to thereby produce the shopper path data** (col. 11, lines 31-36)**.**

In regards to claim 44 Smith does not expressly teach **a non-shopper tracking module configured to receive non-shopper path data from a tracking system.**

However Smith teaches a system for receiving path data (col. 12, lines 1-12) and that path data can be associated with purchase data (col.12, lines 23-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made that path data not associated with a purchase would constitute a non-shopper.

Further the Examiner hold that the difference in a shopper and non-shopper path data is only found in found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP. 2106.

In regards to claim 45 Smith does not expressly teach **the tracking system includes sensors configured to track non-shopper tags throughout each of the shopping environments, to thereby produce the non-shopper path data.**

However Smith teaches the tracking of paths (col. 11, lines 31-36) and that path data can be associated with purchase data (col.12, lines 23-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made that path data not associated with a purchase would constitute a non-shopper.

Further the Examiner hold that the difference in a shopper and non-shopper path data is only found in found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention

from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP. 2106.

in regards to claim 48 Smith does not expressly teach **an environment tracking module configured to receive movable fixture path data from a tracking system.**

However official notice is taken that one of ordinary skill in the art would have been able to apply the receiving of path tracking data in the system as taught by Smith (col. 12, lines 1-12) to movable fixtures to allow a more detailed study in traffic flow and the store layout (col. 33-38).

In regards to claim 49 Smith does not expressly teach **the tracking system includes sensors configured to track environment tags throughout each of the shopping environments, to thereby produce the movable fixture path data.**

However official notice is taken that one of ordinary skill in the art would have been able to apply the path tracking system as taught by Smith (col. 11, lines 31-36) to movable fixtures to allow a more detailed study in traffic flow and the store layout (col. 33-38).

In regards to claim 50 Smith teaches does not expressly teach **predetermined statistical measure is selected from the group consisting of average shopper depth, average shopper fight-left position, average shopper path, average shopper density, average shopper velocity, shopping intensity, percent of trip completed, average non-shopper depth, average non- shopper right-left position, average non-shopper path, average non-shopper density, average non-shopper**

velocity. However the system of Smith teach a shoppers statistical calculations such as intensity (col. 12, lines 17-18) density (col. 12, lines 18-19) etc; official notice is taken that average of such calculation is an old and very well known mathematical formula. Additionally Smith allows for the addition of other types of analysis not expressly disclosed (col. 12, lines 55-57).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well know mathematical formula of averaging individual customer data to determine the predictable outcome of an average of this data for a specific location, chain, etc, in the invention of Smith to provide a more robust study of customer traffic flow to analyze for example customer safety across the board (col.12, lines 48-51).

14. Claims 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US Patent 6,563,423) as applied to claim 41 above and in further view of Schkolnick et al (US Patent 5,729,697).

In regards to claim 46 Smith does not expressly teach **a product tracking module configured to receive product path data from a tracking system.** However Smith allows for other types of senor reading in the disclosure (col. 13, line 21-27 and 40-44).

Schkolnick teaches an intelligent shopping cart which allows for the transmission of object location in the store as well as in the cart using radio frequency transmission.

It would have been obvious to one of ordinary skill in the art to include the tracking system of Smith the ability to also detect products as taught by the system of f Schkolnick since the claimed invention is merely a combination of old elements and in the combination each element merely would have preformed the same function as it did separately and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

In regards to claim 47 Smith does not expressly teach **the tracking system includes sensors configured to track product tags throughout each of the shopping environments, to thereby produce the product path data** However Smith allows for other types of senor reading in the disclosure (col. 13, line 21-27 and 40-44).

Schkolnick teaches an intelligent shopping cart which allows for the transmission of object location in the store as well as in the cart using radio frequency transmission (abstract).

It would have been obvious to one of ordinary skill in the art to include the tracking system of Smith the ability to also detect products as taught by the system of f Schkolnick since the claimed invention is merely a combination of old elements and in the combination each element merely would have preformed the same function as it did separately and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bill Epmeier A 'racetrack:' would it work for supermarkets?, published April 2001, teaches old and well known store layout types.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FOLASHADE ANDERSON whose telephone number is (571)270-3331. The examiner can normally be reached on Monday through Thursday 8:00 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on (571) 272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Folashade Anderson/

Examiner, Art Unit 3623

/Andre Boyce/

Primary Examiner, Art Unit 3623